



Preliminary Rate Analysis

1 Purpose

Several ways of structuring and calculating stormwater service fees (or “user charges”) are employed by cities and counties throughout the United States. This section of the report summarizes several rate methodology options available to Fairfax County. The basic parameters employed for rate structures, plus modifying factors that can be applied to the various methodologies, are described. Other funding methods that can be blended with fees are identified.

The initially preferred rate structure and mix of funding may have to be adjusted as needs change over time. Information will flow from the capital improvement master planning in the future that may suggest that substantial capital investment is needed in the drainage systems. More remedial repairs and capital improvement needs may be identified as the watershed plans are implemented and existing systems continue to age. Stormwater quality management may become an even more demanding part of the program as the County’s VPDES permit is renewed. It is anticipated that the Potomac Tributary Strategy recently established by the State, will be the foundation for performance parameters in the County’s VPDES permit to be reissued in FY 2007.

2 Evaluation Criteria

The consultant team’s experiences implementing a variety of stormwater funding methods elsewhere suggest that the most important factors in selecting a practical approach are the local circumstances, practices, and politics. Every community is different and needs a solution that fits its specific situation. Beyond circumstances unique to Fairfax County or the Virginia statutes, the following criterion was applied during the initial evaluation of the feasibility of the utility and during implementation discussions for the utility:

- Fund the program using a methodology that links the demand for services to the amount paid by any particular property owner.
- Provide a mechanism that recognizes positive behaviors by the land owner to reduce impacts on flow and pollutant loading.
- Dedicate the funding to the objectives of the stormwater program where the monies cannot be redirected to other competing priorities.
- Utilize a funding strategy that encourages greener development.
- Make the funding mechanism an equitable strategy, bringing all properties into the funding base, not just those paying real estate and other general fund revenues.
- Apply the funding strategy uniformly across the County.
- Utilize bond debt to support the capital improvement program.

None of the service charge rate structures or secondary funding methods examined during the preparation of the final policy for the utility is “perfect” under such a broad range of criteria. The listed order of the criteria above does not imply a priority, and no single consideration should outweigh the others to the extent that a rate methodology or secondary funding method is selected or rejected for any one reason.





3 Methodologies for Cost Allocation

The methodologies reviewed included *imperviousness*, *imperviousness and percent imperviousness*, *imperviousness and gross parcel area*, and *gross area with modifying factors*. Each methodology is evaluated against the criteria listed above and the findings are provided following this summary.

Preliminary Recommendation for Rate Methodology: The primary methodology for allocation of costs recommended is “imperviousness” on the property with a secondary factor of the gross parcel area. Imperviousness has been evaluated and identified as the key contributor to demand for services in stormwater, whether it is for routine drainage, flood controls, public safety, or water quality. There exists a strong body of research detailing the correlation between the development of a parcel and the impacts of that development on the drainage system and the overall services to be provided by local governments throughout the nation. It is recommended that gross area be included as a secondary rate factor to address those services that must be provided regardless of the presence of imperviousness and that should be fairly borne by all properties within the County. This increases the equity of the rate methodology, not limiting it to only land that has been disturbed and by taking into account the total lot size along with the amount of imperviousness.

Modifying Factors: Many modifying factors were considered in the development of the rate structure preliminary recommendation. These includes such items as *water quality impact factor*, *service charge credits*, *watershed surcharges*, *base rate for fixed costs*, and *varying approaches to single family residential properties*. Upon completion of the evaluation for Fairfax, the modifying factors of service charge credits and a tiered single family detached-housing rate structure are recommended. Service charge credits provide an opportunity for the County to recognize contributions made by private investment in the drainage system and in water quality protection that reduce the demand for service. A tiered single family residential rate structure also increases the equity by recognizing the varying amount of imperviousness present within this relatively homogenous land use activity. The County should consider whether it wants to place a limit on the number of billing units to be charged single family detached residential, which often occurs in the initial establishment of stormwater utility rates.

Preliminary Recommendation on Rate Modifiers: Combining a primary methodology of imperviousness and gross parcel area with the modifying factors of a multi-tiered residential rate with service charge credits will provide the County will an equitable basis of cost allocation that is legally defensible, that can be understood by the general public through a targeted education program, and that will be administratively manageable. Over time the County may choose to refine the rate structure to include additional elements of watershed surcharges, water quality impact factors, and a base rate for fixed costs. These additional factors can refine the equity of cost allocation but are not critical in the short term to effectively establish a stormwater user-fee funding strategy. These additional factors often require more detailed program cost tracking and administrative overhead to ensure fair allocation of costs occur.

4 Estimated Rate

Estimated Rate Based on Imperviousness ONLY: Upon completion of the program evaluation and analysis of the projected service enhancements to begin to build a proactive



stormwater program, an analysis of potential rates was undertaken. The approach to estimating a rate was to use Imperviousness only as the rate methodology. This was done due to constraints on data availability. AMEC utilized the data available from the Department of Tax Administration, the data analysis utilized in the 1997 rate evaluation, and existing GIS data provided by the County. Should the Board of Supervisors choose to pursue the implementation of a user-fee as the primary funding method for the program, an update of the planimetric data on imperviousness needs to be undertaken. It is estimated that an update will cost \$1,750,000. Once completed, annually the County should adopt a process to ensure that the data is current.

Basic assumptions regarding fund balance, level of other incomes such as the use of Pro Rata Share and fees for regulatory inspections, debt service and credit initiatives were made based on input from County staff. If the Board moves forward with this effort, these key policies will be finalized in a policy statement and factored into a final rate analysis.

4.1 Level of Service

A critical component of rate analysis is the cost of services to be provided. The program drives the policy regarding rate structure, rate base and rate factors. Within the establishment of the cost of service, the level of service (or the quantity, mix and phasing of program elements) must be established to address priorities or goals of the program. Over the past six months, the County and the consultant team have worked with a Citizen Advisory Committee to prioritize the program initiatives that will address the challenges in watershed plan implementation, long-term system operation, regulatory compliance, and program management. The following program categories (program matrix) were used to define the effort necessary to shift the program to a more comprehensive approach in management of the drainage system and in environmental protection.

Engineering and Design

- Design Criteria, Standards and Guidance
- Design, Field and Operations Engineering
- Maintenance and Field Engineering Support
- Hazard Mitigation Planning
- Dam Safety Program
- Retrofitting Program
- Flood Insurance Program
- Community Rating System
- Code Development and Zoning Support Services
- GIS, Mapping and Database Management
- Public Education/Outreach
- Infrastructure Management Planning

Operations and Maintenance

- General Maintenance Management
- SW Management Facilities Maintenance
- Conveyance System Maintenance
- General Remedial Maintenance
- Emergency Response Maintenance
- Infrastructure Management Program





- GASB 34
- Field Data Collection
- Public Drainage System Inspection/ Regulation
- Private Facilities Inspection and Regulation
- Public Assistance and Complaint Response

Plan Review and Erosion Control

- General Code Development and Review
- Stormwater Systems Inspection -New Dev
- Regulatory Enforcement
- General Permit Administration
- Erosion and Sediment Control Program

Capital Construction

- New System and SWF Upgrade Capital Improvements
- Construction Project Management
- Inspections
- Conveyance System Rehabilitation
- Contracted Survey Services
- Land, Easement, and ROW Acquisition

Watershed Management Planning

- Watershed Planning
- BMP Development
- Comprehensive Monitoring Program
- Stream Protection and Restoration
- BMP Programs and Activities
- Used Oil and Toxic Materials
- Spill Response and Clean Up
- Program for Public Education and Reporting
- Illicit or Cross Connections
- Illegal Dumping
- Multi-objective Planning and Support
- Zoning Support
- Landfills and Other Waste Facilities
- Emergency Response

General Expenses

- General Stormwater Program Administration
- Billing Operations
- HR Functions
- General Program Planning and Development
- Budget and Cost Controls
- Contract Management
- Interagency Cooperative Activities
- Cost and Rate Analysis
- Emergency/Disaster Management





The current resources for staff, operations and maintenance, capital construction, watershed planning, general expenses and regulatory compliance, using the FY 2005 budget, were assigned to address the functions identified above. For example, existing staff positions assigned to this program were reviewed to determine gaps in resources necessary to meet program objectives for the long-term. The process involved assigning available time in increments of 1 percent to the needs as defined using the program matrix. As this is an evaluation of resource demand and NOT a budget, the financial analysis is based on the position class within the County personnel classification system, set at a mid-range and fully burdened. This allows for the evaluation of the time demands and the total cost to the County for the services addressed by each staff position. The following represents a sample of the position review.

Fairfax County Stormwater Program Stormwater Cost of Service Analysis/Rate Model Cost of Service Analysis; Personnel Allocation (by title, costs fully-burdened)						Annual Inflation Rate
Year 1						
Major Cost Category	Cost Subcategory	SWP Director S-34	Branch Chief - Planning (S-31)	Branch Chief - Projects (S-31)		
		\$ 118,826.46	\$ 106,483.79	\$ 106,483.79		
Administration						
General Stormwater Program Administration	0.15	\$ 17,823.97	0.10	\$ 10,648.38	0.10	\$ 10,648.38
Billing Operations		\$ -		\$ -		\$ -
Legal Support Services		\$ -		\$ -		\$ -
HR Functions	0.05	\$ 5,941.32	0.05	\$ 5,324.19	0.05	\$ 5,324.19
General Program Planning and Development	0.05	\$ 5,941.32	0.05	\$ 5,324.19	0.05	\$ 5,324.19
Budget and Cost Controls	0.10	\$ 11,882.65	0.05	\$ 5,324.19	0.05	\$ 5,324.19
Contract Management		\$ -		\$ -		\$ -
Public Education/Outreach		\$ -		\$ -		\$ -
Interagency Cooperative Activities	0.05	\$ 5,941.32	0.03	\$ 3,194.51	0.03	\$ 3,194.51
GIS, Mapping and Database Management		\$ -		\$ -		\$ -
Indirect Cost Allocations		\$ -		\$ -		\$ -
Unspecified Overhead		\$ -		\$ -		\$ -
Cost and Rate Analysis		\$ -		\$ -		\$ -
Emergency/Disaster Management	0.02	\$ 2,376.53		\$ -		\$ -
Subtotal:	0.42	\$ 49,907.11	0.28	\$ 29,815.46	0.28	\$ 29,815.46
Engineering and Design						
Design Criteria, Standards and Guidance	0.05	\$ 5,941.32	0.03	\$ 3,194.51	0.10	\$ 10,648.38
Design, Field and Operations Engineering		\$ -		\$ -	0.05	\$ 5,324.19
Maintenance and Field Engineering Support		\$ -		\$ -		\$ -
Hazard Mitigation Planning		\$ -	0.03	\$ 3,194.51		\$ -
Dam Safety Program	0.02	\$ 2,376.53	0.02	\$ 2,129.68		\$ -
Retrofitting Program		\$ -		\$ -		\$ -
Flood Insurance Program		\$ -	0.01	\$ 1,064.84		\$ -
Community Rating System		\$ -	0.01	\$ 1,064.84		\$ -
Code Development and Zoning Support Services	0.05	\$ 5,941.32	0.02	\$ 2,129.68		\$ -
Infrastructure Management Planning	0.05	\$ 5,941.32	0.02	\$ 2,129.68		\$ -
Subtotal:	0.17	\$ 20,200.50	0.14	\$ 14,907.73	0.15	\$ 15,972.57

In addition, existing direct costs such as equipment, supplies and capital contracts were also allocated using the program matrix on the basis of how to use these resources to meet the goals; NOT how they are currently used but how they can be used to meet the defined needs of the County. This process identifies the gaps in direct costs needed to address the program goals and objectives. The projection of new resources is based on using the existing resources as effectively as possible to address long-term priorities.

4.2 Proposed Level of Service

Development of the recommended level of service was completed by taking input on priorities from the Citizens Advisory Committee and staff and identifying program components needs to address them. The next step was to compare the existing resources available to address the program components, and to evaluate new resources necessary to fill gaps in service capability. The new plus existing resources defines the total service resources to accomplish the program goals.

The major priorities to be accomplished in the recommended level of service include the following, by program area:





Engineering and Design

1. Expand the floodplain management program including management of the dams operated and maintained by the County to meet all regulatory requirements. This is a critical initiative to ensure that floodplains are protected and that the County's liability for the management of dams, including state regulated dams is minimized.
2. Maintain the stream assessment program, including databases and GIS tools, and continue on-going analysis. This program is important in the process of Watershed Planning and will be used in evaluating the success of various projects/best management practices implemented from the Watershed Plans.
3. Expand existing efforts in public education, including establishing a permanent full-time position for stormwater communications, program-wide, not just focused on planning but on all areas of stormwater management (maintenance, regulatory and permit compliance, Best Management Practice (BMP) implementation, volunteerism, etc.).
4. Design and implement projects identified in Watershed Plans; projects to address major system retrofits; dam improvements; and other projects established in the Capital Improvement Program.
5. Increase support for construction management and land acquisition activities necessary to respond to an increase in capital construction, ensuring that projects will be implemented in a timely manner. All areas of construction management must be addressed to ensure that projects will not be delayed due to limited capability in easement and property acquisition as well as construction oversight and inspection.

Operations and Maintenance

1. Complete an assessment of the existing drainage system, including the interconnections with privately owned facilities. This includes the inventory and assessment of those private facilities to evaluate the role of the County in their on-going operations and maintenance. Future goals of the program may include County maintenance of privately owned facilities.
2. Enhance the level of service for facilities maintenance through a growth in the mowing program, both in-house capabilities and through contracted services.
3. Create an easement inventory for access to the stormwater drainage system and identify deficiencies. This will serve to improve efficiencies in maintaining the overall system and is important in the evaluation of County maintenance policy regarding privately owned facilities.
4. Implement programs to address compliance under the MS4 permit. These programs include sweeping of County-owned properties (driveways and parking), contracted inspection of hazardous material storage facilities, and signing watersheds for public education.
5. Inspect privately owned facilities to determine current conditions and functionality, utilizing contracted services. This will be used to assist owners through guidance on steps necessary to maintain and sustain performance.
6. Enhance maintenance capability for the closed, underground system by utilizing technology for inspection of the system. This will provide data necessary to prioritize investment in system rehabilitation as well as provide on-going data for update of the system inventory.





7. Enhance response time for addressing routine maintenance and customer assistance, shifting the maintenance services from a reactive, high priority-only service to a program that will address routine as well as high hazard conditions within the drainage system.

Regulatory Assistance, Inspection and Plan Review

1. Provide technical assistance to private owners of stormwater facilities. As a first step in achieving, at a minimum, the original design performance for the facility, the County will provide guidance on maintenance techniques and processes, including education on responsibility of the owner for the system.
2. Increase the County's inspection capability for construction oversight as the County adopts new standards for facility design to incorporate Low Impact Development best management practices. Ensuring that the BMPs are constructed and maintained to effectively contribute to improved water quality is critical. A key role for this activity is to educate, both the contractor community and the owners of the LIDs.
3. Increase the resources for Plans Review to address the change in workload due to LID impacts in development standards and to increase the efficiency of current resources, giving a high level of service to the development community.
4. Increase the resources in MSMD for inspection of the drainage system, improving the level of service from the current ability to inspect portions of the system once every five years to once every three years. This is critical for maintenance oversight of the LID facilities to ensure that they are functioning as designed.

General Administration

1. Address coordination of the overall program of services for stormwater management by creation of a Director of Stormwater who will be responsible for the oversight of the two Divisions and for interdivisional coordination of the full program of services. Coordinated leadership is critical as the program of services expand over time. This position should report to the Public Works Director and provide overall vision and direction for the program.
2. Increase accountability for resources and for contracting activities in both Divisions for effective delivery of services. Increased effectiveness of the technical and professional staff of the Divisions can be achieved by consolidating management functions for budgeting, contracting, purchasing, administrative support, and systems operation (data management). This requires both reorganization of the current staff and increases in staff to address account management, program and systems assessment, increased contracting activities and routine administrative support.
3. Provide sufficient resources to the Department of Tax Administration to support their role in billing and collecting user-fees. The stormwater program will purchase assistance from the DTA and should pay its "fair share" of the burden for this Department in billing, collecting, and accounting for the stormwater fees.
4. Contribute sufficient resources to the County's General Fund as compensation for utilization of general overhead services such as Human Resources, Management and Budget, County Attorney, County Executive and Facilities Management. Often organizations utilize an indirect cost allocation for enterprise operations to support the cost to the General Fund for these important services in





support of the program. The County needs to determine whether the Stormwater Utility will be responsible for this charge. It is currently calculated on the basis of 15.61% of the salary budget for the program. This can be as much as \$11.5 million dollars over the first five years of the utility financing.

Performance Objectives – Level of Service

The following major program area performance objectives were used to evaluate the resources necessary to accomplish the priorities of the stormwater program.

- Bring all dams that are owned or operated by the County into full regulatory compliance within 24 months, addressing high-risk sites first. Maintain the integrity of the structures routinely, investing as necessary in rehabilitation of the dam.
- Maintain all necessary data in support of the floodplain management program and partner with FEMA to update the County floodplain maps within the first 36 months of the expanded program. Evaluate the Community Rating System program and determine an appropriate role for the County in support of this effort and implement strategies as needed.
- Provide annual, on-going support to the County Geographic Information System staff to bring the data layers that are important to the stormwater program up to date and to keep them current. This includes the update of the planimetric data on imperviousness as well as other databases on the drainage infrastructure, floodplains, stormwater management facilities, etc.
- Establish a full-time dedicated position to public education on all elements of the stormwater program and services provided by the County. Expand the public education program to reach all citizens and businesses over the next five years, addressing cultural and language issues as necessary.
- Initiate the update of all Watershed Plans no later than July 2007 with the goal of completion by July 2008.
- Initiate changes in the level of service for the operations and maintenance of the County owned or operated drainage system components, to move from a “high-risk only” response capability to resolving all requests for service from the community, service needs identified by routine inspection, and emergency service issues within 12 months of receipt. This may result in projects shifting to the capital improvement program at which time they would be prioritized within the overall CIP program. It is anticipated that this level of service could be achieved within the first five years of the expanded program.
- Sustain the investment in the CIP at no less than 40% of the overall stormwater program budget the next 20 years.
- Initiate and/or maintain a program of services that will meet the requirements of the MS4 permit on an annual basis. This includes a review of the permit in FY





2006 to position the County for the renegotiation of this permit in the first quarter of FY 2007.

- Incorporate Low Impact Development strategies, after evaluation of specific BMPs, into the PFM, beginning in FY 2006 and as technology changes; and maintain an assessment protocol to determine functionality, long-term maintenance requirements, education initiatives and needed improvements. This includes inspection and testing of the LID practices over time to ensure that the County can evaluate their performance and identify changes needed.
- Complete an assessment of the existing drainage infrastructure under County ownership and/or operation, including the underground system by FY 2010 and evaluate the impact of County operation of all stormwater management facilities, including LID practices.

4.3 Cost of Service

The level of service defined by the objectives identified above is translated into a projection of resources necessary to achieve these outcomes or initiate the steps necessary to achieve these outcomes over time. A number of assumptions have been made in order to define the cost of these services. In addition, several financial parameters and standards were used based on input from the Department of Management and Budget.

Assumptions and Financial Parameters:

1. Current staff resources are valued by the classification of the position and not on the basis of the salaries of the individuals holding the position today. This is done in recognition that turnover will occur and this is done to protect the confidential nature of this data. Personal services are set at mid-range for the grade assigned to the duties.
2. Personnel resources are escalated at a rate of 3.7% based on data from DMB.
3. Personnel resources are fully burdened to account for the supporting costs that address insurance, payroll taxes, retirement, etc.
4. If a change in program or level of service is not anticipated, and a program is maintained constant over the planning period, the cost of service is escalated three (3) percent annually to account for normal increases in cost of operation.
5. To determine the level of expenditure necessary to carry out new program initiative such as construction inspection, capital project design, reduced response time to address maintenance requests, and increased watershed planning efforts, service costs are based on the use of internal staff to accomplish its goals. This is NOT a recommendation but a method to place a value the cost of service. Increase in personnel staffing is a policy decision of the Board and should be addressed in the normal annual budget process. Many services can be out-sourced and public-private partnerships can be very effective in instituting a change in level of service.
6. Resources address total County needs not just the needs of the Stormwater Planning Division or the Maintenance and Stormwater Management Division. Needs for right-of-way acquisition, construction inspection, and billing management are included regardless of organizational assignment of the responsibility.





7. The program enhancements will be initiated in Fiscal Year 2006.
8. Cost assumptions:
 - Computers are on a three-year replacement schedule.
 - Heavy equipment will be amortized on a 10 year replacement schedule.
 - Cost for supplies, training, safety equipment, telephones, etc. are projected on the basis of \$3K per employee, based on average expenditures in the past.

Billing Issues – Impact on Implementation Schedule

The evaluation of the opportunities for billing a service fee for stormwater management identified two critical issues: the data necessary to assign costs to an individual property and the sequencing of billing the fee through the real estate tax billing process. The data necessary to equitably allocate costs with certainty to each property, regardless of land use, is not current. The planimetric data necessary to evaluate the imperviousness to assign a fee has not been kept current. It is necessary to update this data prior to creation of a master account file. In addition, the schedule for real estate tax billing for Fiscal Year 2006 has the account finalization occurring in the spring of 2005. No account file for stormwater can be created in time for billing in for FY 2006.

NOTE: If the stormwater program is to be enhanced in FY 2006 as assumed, it will have to occur using General Fund resources with the user or service fee initiated in FY 2007, shifting the current budget for stormwater as well as the enhanced budget to the fee as its primary resource. This will allow for time to create the data necessary to build the master account file and integrate the file as well as establish procedures for maintaining the billing operation. Due to these issues, ***the Cost of Service planning horizon is 6 years, with the first year funded primarily by the General Fund and all future years primarily funded with the fees from the utility.***

Cost Projections

The following costs are presented by functional area for the six year planning period. The first year includes costs to create the master account file through an update of the planimetric data on imperviousness and the evaluation of each parcel to assign the appropriate fees. Costs include both new initiatives and existing resources. This is NOT a budget but an evaluation of the resource demand projected to achieve the service level objectives.

The total summary of the cost of service is presented in two tables, Table 4-1 representing the category of cost based on typical types of expenditures:

Personnel
Supplies
Services
Capital Expenditures

These categories represent the nature or the type of resource. Again, it is important to recognize that “personnel” does not define whether these are staff resources or contracted resources.





The second cost summary (Table 4-2) represents the cost of service by program functions identified above. This summary includes all new program elements and current budgeted resources.

